

IN THE SPECIFICATION:

Please amend paragraph [0007], as follows.

--[0007] According to one aspect of the present invention, there is provided an optical wavelength converting apparatus which includes a first semiconductor laser, a second semiconductor laser, and a wavelength converting element for converting first and second laser ~~light~~ lights from the first and second semiconductor lasers to sum-frequency light. In this apparatus, there is provided an external resonator structure in which the first semiconductor laser and the wavelength converting element are arranged such that the first laser light can be put under a resonant condition, and an optical path of the second laser light is so determined that the second laser light can propagate through the wavelength converting element. More specifically, reflectances of plural reflective surfaces contained in the external resonator are determined such that the second laser light cannot resonate in the external resonator.--

Please amend paragraph [0008], as follows.

--[0008] According to another aspect of the present invention, there is provided an optical wavelength converting method in which first laser light from a first semiconductor laser and second laser light from a second semiconductor laser are permitted to enter a wavelength converting element for converting the first and second laser ~~light~~ lights to sum-frequency light. In this method, the first semiconductor laser and the wavelength converting element are arranged so as to establish an external resonator structure in which the first laser light can be put under a resonant condition, and the optical path of the second laser light is so determined that the second laser light can propagate through the wavelength converting element.--

Please amend paragraph [0037], as follows.

--[0037] The light power density of the semiconductor laser constituting the external resonator is drastically high, and at the same time its line width is narrow. In such a structure, the sum frequency light can be generated using light at two wavelengths from the two semiconductor lasers even if precise phase matching is not established between these light lights. Further, the semiconductor laser (i.e., the second semiconductor laser) which is to be inserted does not constitute the external resonator. Therefore, when the second LD 117 is modulated, the sum frequency light 119 can be modulated with almost no delay in accordance with the control pattern of modulated current injected into the second LD 117.--

Please amend paragraph [0038], as follows.

--[0038] In contrast to the above, simultaneous resonance of two input light is very disadvantageous in the following points: (1) Highly precise control of the external resonator and temperature control are required to achieve the phase matching between the two resonator longitudinal modes and the sum frequency light in the nonlinear optical material. Particularly, in an element in which a periodically domain-inverted structure is formed in the nonlinear optical material to achieve quasi-phase matching, it is very difficult to satisfy a condition for newly generating the sum frequency light when both input light is lights are made in the resonator ~~made~~. (2) Even modulation of one external resonator laser leads to fluctuation in its oscillation spectrum, and time delay in response for establishment of the resonator mode. Accordingly, the conversion efficiency varies, and the modulation speed decreases.--

Please amend paragraph [0045], as follows.

--[0045] Furthermore, a periodically ~~domain-inverted~~ domain-inverted structure for the quasi-phase matching can be provided in the nonlinear optical material constituting the wavelength converting element in the first embodiment. In this case, a propagation direction with a large nonlinear optical constant can be selected in the nonlinear optical material, and hence the conversion efficiency can be improved. Further, ranges of usable LDs and obtainable wavelengths of the sum frequency light can be flexibly widened since LDs in a wavelength range unusable in the angular phase matching method can be used in this case.--

Please amend paragraph [0050], as follows.

--[0050] Sum frequency light 119 obtained by the sum frequency mixing between laser ~~light~~ lights 112 and 118 from the first and second semiconductor lasers 111 and 117 transmits through a waveguide 2116, and goes outside the optical wavelength converting apparatus through the wavelength converting element 113 and the dielectric multi-layer 2106. The power density of the laser light 112 from the first semiconductor laser 111 is increased under the resonant condition. The dielectric multi-layer 2106 is transmissive to the sum frequency light 119, and reflective to the first and second semiconductor laser light 112 and 118. The dielectric multi-layer 2107 is transmissive to the first and second semiconductor laser light 112 and 118, and reflective to the sum frequency light 119.--

Please amend paragraph [0052], as follows.

--[0052] In the structure of Fig. 2, the wavelength converting element 113 is fabricated by forming the waveguide 2116 after establishing the periodically domain-inverted structure 2115 in the nonlinear optical material. The periodically domain-inverted

structure is so designed that phases of three light lights can be matched with each other in the wavelength converting element 113. In other words, where n_1 , n_2 and n_3 are refractive indices for wavelengths of the first semiconductor laser light, the second semiconductor laser light, and the sum frequency light, respectively, the following relation (2) must be satisfied in the light of the phase matching condition:--

Please amend paragraph [0059]. As follows.

--[0059] It is preferable to form the periodically domain-inverted structure 401 in the crystal, and achieve the quasi-phase matching such that the sum frequency light can be effectively generated from two semiconductor laser light lights. The domain inversion can be obtained by forming a comb-shaped electrode. Further, Rb ions are diffused on the crystal surface through a mask to form the waveguide 402 with its stripe width of about 5 μm . Thus, light confinement is improved.--

Please amend paragraph [0075], as follows.

--[0075] A fifth embodiment will be described. An optical wavelength converting apparatus of the fifth embodiment has a feature in that pulse ~~current~~ currents corresponding to a signal and bias current superimposed thereon are supplied to the second semiconductor laser to output pulse-shaped laser light. The fifth embodiment is the same as the second, third, or fourth embodiment in other points.--

Please amend paragraph [0089], as follows.

--[0089] Fig. 13 illustrates the optical wavelength converting apparatus of the ninth embodiment. A laser chip 902 having an active layer of a strained quantum well structure, which is the second semiconductor laser, is disposed such that light therefrom enters the

wavelength converting element 113 ~~form~~ from a side opposite to the side on which the first semiconductor laser 701 is disposed.--